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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/698,492	11/03/2003	John D. Brennan	571-886	3236

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EXAMINER	
SKIBINSKY, ANNA	
ART UNIT	**PAPER NUMBER**
1631	

DATE MAILED: 03/24/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/698,492	BRENNAN ET AL.	
	Examiner	Art Unit	
	Anna Skibinsky	1631	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *04 January 2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-29* is/are pending in the application.

4a) Of the above claim(s) *4 and 22-29* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-3 and 5-21* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *4 pages*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

Detailed Action

Reply to Applicant

1. Applicant's election with traverse of Group I, claims 1-21, and Specie B-1, claim 5 in the reply filed on January 4, 2006 is acknowledged. The traversal is on the ground(s) that searching different process claims would not be an undue burden upon the office. This is not found persuasive because Group I comprises a microarray specifically comprising sol-gel while the other Groups are drawn to processes that can be performed separately from the specific sol-gel microarray and have additional limitations not required within the Group of the sol-gel microarray, for example the business method of Group V, claim 29. Thus the amending of claims 22, 25, and 29 is non-persuasive to overcome the restriction requirement.

The requirement is still deemed proper and is therefore made FINAL.

2. Claims 4 and 22-29 are withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected Group and Specie, there being no allowable generic or linking claim. Applicant timely traversed the restriction (election) requirement in the reply filed on January 4, 2006.

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the

applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

PRIOR ART REFERENCE 1

2. Claims 1-3, 5-13, 16-17 and 21 are rejected under 35 U.S.C. 102(e) as being anticipated by Zhang et al. (US Pub No. US2004/0249082; priority date August 23, 2003)

The applied reference has a common inventor (J. D. Brennan) with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 102(e) might be overcome either by a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not the invention "by another," or by an appropriate showing under 37 CFR 1.131.

3. Zhang et al. teaches a sol-gel material used as a surface for biomolecule compatible microarrays (Abstract; paragraph 002). Here the microarray or biosenors for immobilizing enzymes and proteins are understood to be a typical microarray with a matrix of spots to which the biomolecules are attached. The silica based sol-gel described is taught as being effective for entrapping biological substances within it's matrix (paragraph 0134), including when used for a microarray (paragraph 0135, lines 12-14 and 24-25). Thus the prior art reads on claims 1 and 21.

4. As in instant claims 2 and 3, the prior art points out it has been shown that a biocompatible sol-gel processing method can be used to entrap proteins in it's matrix

(paragraph 0013, lines 1-4) and teaches that the material of the prior art invention may be a polyol silane sol-gel (paragraph 0017, lines).

5. As in instant claims 5 and 6, the prior art teaches that the organic portion of the polyol may be prepared with molecules listed in claim 5, including for example dextran of claims 5 and 6 (paragraph 0069).

6. As in instant claims 7 and 8, the prior art teaches using DGS and MSS, organic polyol-based silanes.

7. As in instant claim 9, the prior art teaches that the siliceous material is prepared using polymeric molecules with a structure of R-(Si)-(OR)4 where the "R" maybe ethoxy, methoxy or other groups (paragraphs 0066, 0067 and 0070).

8. As in instant claim 10, preparation with sodium silicate is taught (paragraph 0069, lines 33-34)

9. As in instant claims 11, 12, and 13, the prior art teaches use of additives including one or more soluble polymers (Abastract; paragraph 0017; and paragraph 0018).

10. As in instant claims 16 and 17, the prior art teaches glass monoliths (paragraph 0014, lines 1-11).

PRIOR ART REFERENCE 2

11. Claims 1-3, 9, 11-17 and 21 are rejected under 35 U.S.C. 102(e) as being anticipated by Um et al (Pub No. US2003/0124371; priority date Nov. 8, 2001).

12. The prior art of Um et al. teaches a surface-based DNA microarray where more than 100,000 different probe sequences can be a bound to distinct special locations where each spot corresponds with a gene. The material taught in the prior art forms a networkd, i.e., a matix. The prior art thus reads on claims 1 and 21.

13. As in instant claim 2, the prior art teaches polymeric hydorgels for immobilizing analytes, where hydrogels are a type of sol-gel (paragraph 0009).

14. As in instant claims 3 and 9, polyol silanes and bis-silanes are taught as components of the hydrogel (paragraphs 0133-0135)

15. As in instant claims 11-13, the prior art teaches two component hydrogel systems composed of crosslinked polymers and copolymers are taught (paragraph 0014), explaining that hydrogels are water-swellable (paragraph 0017) and contain several moieties. The hydrogel has water absorbent layer that includes copolymers (paragraph 0019, lines 13-15; paragraph 0048; paragraph 0068, lines 13-14)

16. As in instant claims 14 and 15, a moiety composing the hydrogel may contain glycerol or polyethylene glycol (paragraph 0068, lines 27-29).

17. As in instant claims 16 and 17, the material forming the substrate includes glass or metals (paragraph 0097, lines 1-3 and lines 13-15; and paragraph 0122).

PRIOR ART REFERENCE 3

18. Claims 1-3, 5-6, 16-17 and 21 are rejected under 35 U.S.C. 102(e) as being anticipated by Preininger (Pub No. US2003/0040008; priority date April 12, 2000).

19. The prior art teaches immobilizing or binding analytes such as DNA, nucleic acidsm proteins, pepetides and enzymes and others to solid surfaces includind biochips (paragraphs 0001, 0003, and 0017). Additionally, more biochips and microarrays for immobilizing DNA are taught (paragraphs 0020-0021). A variety of analytes are taught to attach to the surface in a spatially precise manner (paragraph 0030). Thus, the prior art teaches the limitations of claims 1 and 21.

20. As in instant claims 2-3 and 5-6 the prior art teaches arrays made of various polymeric silanes and dextrans (paragraph 0024). Additionally, dextrans as a hydrogel, a type of sol gel, is taught (paragraph 0024, lines 9-12).

21. As in instant claims 16 and 17, the surface of the material may be glass (paragraph 0018).

Claim Rejections - 35 USC § 112

22. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

23. Claims 1-3 and 5-21 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

24. Claim 1 recites a "microarray comprising one or more spots". This is confusing because a microarray or any array for that matter should contain an array of spots and not only one. What is meant by a microarray with only one spot? Clarification is requested.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Anna Skibinsky whose telephone number is (571) 272-4373. The examiner can normally be reached on 8 am - 5:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ardin Marschel can be reached on (571) 272-0718. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Ardin H. Marschel 3/20/06

ARDIN H. MARSCHEL
SUPERVISORY PATENT EXAMINER